CLAIMS

1. A method for computing a threshold Sth_i used in demodulating a quadrature amplitude modulated (QAM) signal to generate a plurality of soft bits per received symbol for input to a turbo decoder, the method including the steps of:

computing the mean amplitude A of the received symbols; and

multiplying the mean amplitude A by a constant C_i for a square QAM constellation with 4^m points, such that

$$Sth_i = A \times C_i$$

where m is a positive integer and I is a positive integer from 1 to $\left(\sqrt{4^{m-1}}\right)-1$.

2. A method according to claim 1, wherein the mean amplitude A is computed from a block of K received symbols, where K is a positive integer.

3. A method according to either one of claims 1 or 2, wherein the value of K is inversely proportional to the speed of change in channel conditions.

4. A method according to any one of the preceding claims, wherein the constant C_i is computed according to

$$C_i = 2 \times I \times \Delta$$

where Δ is a normalising parameter for a square QAM constellation with 4^m points.

5. A method according to claim 4, wherein the QAM signal is a 16QAM signal and the constant C_i equals $\frac{2}{\sqrt{10}}$.

6. A method according to claim 4, wherein the QAM signal is a 16QAM signal and the constant Ci equals 0.5.

7. A method according to any one of the preceding claims, wherein the mean amplitude A of the received symbols is computed according to

$$A = \max(AI, AQ) + 0.5 \min(AI, AQ)$$

where AI and AQ are respectively the averages of orthogonal I and Q components of each received symbol.

8. A method according to any one of claims 1 to 6, wherein the mean amplitude A of the received symbols is computed according to

$$A = AI + AQ$$

where AI and AQ are respectively the averages of orthogonal I and Q components of each received symbol.

9. A method for generating soft bits per received symbol for input to a turbo decoder used in demodulating a quadrature amplitude modulated (QAM) signal, the method including the steps of:

computing the threshold Sth_i according to any one of the preceding claims; and

computing one or more of the soft bits from the threshold Sth_i.

10. A method according to claim 9, wherein log2 4m soft bits are computed from the threshold Sth_i.

11. A device for computing a threshold Sth_i used in demodulating a quadrature amplitude modulated (QAM) signal to generate a plurality of soft bits per received symbol for input to a turbo decoder, the device including:

means for computing the mean amplitude A of the received symbols and multiplying the mean amplitude A by of the received symbols and multiplying the mean amplitude A by a constant C_i for a square QAM constellation with 4^m

points, such that

$$Sth_i = A \times C_i$$

where m is a positive integer and i is a positive integer from 1 to $\left(\sqrt{4^{m-1}}\right)-1$.

12. A device for generating soft bits per received symbol for input to a turbo decoder used in demodulating a quadrature amplitude modulated (QAM) signal, the device including:

means for computing the mean amplitude A of the received symbols and multiplying the mean amplitude A by a constant C_i for a square QAM constellation with 4^m points, such that

$$Sth_i = A \times C_i$$

where m is a positive integer and i is a positive integer from 1 to $\left(\sqrt{4^{m-1}}\right)-1$; and means for computing one or more of the soft bits from the threshold Sth_i..

13. A communication receiver including a device according to either one of claims11 or 12.